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Agricultural Water

Agriculture is a major industry in the basin and the largest user of land and water. It is a significant component of the local economy.

10.1 Introduction

This section describes the agricultural industry in the basin, along with its problems and future destiny. Agriculture is slowly giving way to urban land uses in Utah County. This county ranks number two in the state in agriculture income with over $87 million. Eastern Juab County continues with agriculture as the primary generator of economic activity. Western Wasatch County is also becoming more urbanized but agriculture remains economically important. The Summit and Sanpete counties portion of the basin are primarily agricultural. Most of the irrigated lands have a substantial water supply, with resulting good crop yields.

10.2 Background

Farmers in Juab County are primarily dependent upon beef production for their income. More than 50 percent of the farms are devoted to this type of agriculture. Farmers in northern Juab Valley base their present farm management practices on a water supply that is insufficient for the available land. Consequently, the Nephi Irrigation Company, along with many individual farmers, have drilled wells to supplement the irrigation water supply from Salt Creek.

Southern Utah County is still mostly rural, but only a few farms and ranches provide full-time employment for farmers. Several dairies with 100 to 500 milking cows are the exception. Fruit is also a major income producer. Many farms in Utah County are part-time operations with the farmers working full-time at other employment. Western Wasatch County also has few full-time farmers.

10.3 Agricultural Lands

The Utah Lake Basin has suitable climatic and soil conditions for diversified irrigated and dry farm agriculture. Dairy farming, beef and fruit production are the principal farm enterprises.

Harvesting alfalfa near Nephi

10.3.1 Irrigated Cropland

Alfalfa is the crop grown most extensively, followed by pasture and small grains. Most of these three crops are grown for dairy and beef cattle feed. Fruit is the major cash crop, occupying nearly 10,000 acres. Orchards are located mostly on bench lands in Utah County and produce apples, peaches, pears, cherries and apricots. The basin contains approximately 166,400 acres of irrigated land, including land that is fallow, idle or sub-irrigated. This land may use 453,700 acre-feet of water for crop production. See Table 9-5 for irrigation water use and projected demand. Table 10-1 shows the 1988 acreage for each crop. Cash crop farms usually include livestock to use soil conserving crops, i.e., alfalfa and pasture.

Table 10-1
IRRIGATED LAND BY CROP-1988

Crop	Juab	Sanpete	Summit (acres)	Utah	Wasatch	Total
Fruit	25	0	0	9,850	0	9,875
Other Horticulture	5	20	0	85	0	110
Grain	2,945	440	35	22,655	1,290	27,365
Corn	700	0	0	12,140	0	12,840
Vegetables	65	0	0	200	80	345
Alfalfa	6,420	590	220	24,320	5,790	37,340
Grass Hay	560	1,250	660	9,210	2,470	14,150
Grass/Turf	0	0	0	650	20	670
Pasture	3,270	500	1,490	22,950	6,680	34,890
Sub-irrigated Hay/Grass	1,950	35	250	4,530	3,930	10,695
Idle and Fallow	2,570	90	260	13,980	1,220	18,120
Total	18,510	2,925	2,915	120,570	21,480	166,400

10.3.2 Dry Cropland

Dry farm production of wheat is moderately successful, particularly in Juab County, when the land is fallowed every other year. Some alfalfa is also grown without irrigation, but yields are low and farmers only harvest one cutting annually. Approximately 2,900 acres in dry cropland are harvested each year.

10.3.3 Other Lands

In 1995 there were 114,200 acres of wet/open water areas and 56,900 acres in urban uses. Most of the remaining land area consists of rangeland and national forests. According to *Utah Conservation Needs Inventory Report* issued in 1970, Juab County has 252,700 acres of private rangeland, Utah County has 325,000 acres, and Wasatch County has 126,800 acres. Additional rangeland is used for grazing livestock and wildlife. The Forest Service and Bureau of Land Management administer these lands, as well as the Utah Division of Parks and Recreation and Division of Wildlife Resources.

10.4 Agricultural Water Problems and Needs

Water problems in the agricultural sector are centered in supply shortages and conversion of cropland to municipal and industrial uses.

10.4.1 Irrigation Water Shortages

More than 200,000 acres of arable land in the study area are not irrigated. Most of this arable land is south or west of Utah Lake in Utah County and eastern Juab County. About 13,000 acres of this land could be irrigated as part of the Bonneville Unit of the Central Utah project.

Some presently irrigated lands in Heber Valley, southern Utah County and eastern Juab County experience water shortages in normal or dry years. Supplemental irrigation from the Bonneville Unit will alleviate most but not all these shortages.

Future demands for irrigation water in non-urbanizing areas are not projected to be different from present demands. The exception will be in urbanizing areas where future demand will decrease and some of the irrigation water will be converted to other uses.

10.4.2 Erosion

Soil loss through erosion occurs on lands in the upper watershed, on dry farm lands and on irrigated

Table 10-2
HISTORICAL AND PROJECTED IRRIGATED CROPLAND
UTAH LAKE BASIN

Year	Juab	Sanpete	Summit	Utah	Wasatch	Total
			(acres)			
1966	13,440	2,670	1,550	135,180	22,450	175,290
1988	18,510	2,925	2,915	120,570	21,480	166,400
1995	18,400	2,900	2,900	118,200	21,000	163,400
2000	18,400	2,900	2,800	115,800	20,900	160,800
2010	28,200(a)	2,900	2,800	111,600	20,700	166,200
2020	28,100	2,900	2,700	108,300	20,600	162,600

[a] Assumes SFN project completion by 2010.

cropland. The most critical erosion problems are occurring on flood irrigated row crops where soil losses approach 10 tons per acre in some areas.

10.4.3 Cropland Conversion

Table 10-2 shows the historical and projected irrigated cropland. The amount of water needed for irrigation of crops to the year 2020 is estimated in Section 9, Table 9-5.

Irrigated cropland acreage has decreased in the basin as land has been converted to residential and commercial developments. Water-related land use mapping in 1966 and 1988 show a decline during this period. This rate of decline will likely continue until presently dry-farmed land in east Juab County receives irrigation water under the Spanish Fork Canyon/Nephi irrigation system of the CUP. By the year 2020, 162,600 acres are expected to remain in irrigated cropland.

10.4.4 Water Right Concerns

Some farmers are concerned with lack of incentive to conserve water through improved irrigation practices. These farmers believe the water they save should belong to them and they should be allowed to irrigate additional land or sell it to other users in the open market. But Utah water law gives an irrigator the right to use only as much water as is needed to produce a crop, up to the duty specified by the State Engineer, i.e., four acre-feet. In the Utah Lake Basin, water being diverted by irrigators from streams or aquifers but not consumed by crops returns to the hydrologic system. Usually, it returns to Utah Lake or a groundwater aquifer. Others have appropriated this previously "wasted" water and acquired vested rights to its use. Therefore, "saved water," already appropriated by others, is not available to the one who saves it for new uses.

Also, farmers whose water needs are met by pumping large wells worry that the State Engineer's requirement for metering may lead to a loss of part of their water right. They reason that if they are allowed to pump up to four acre-feet, but metering proves only three acre-feet are needed to fully meet crop requirements, the other acre-foot will be lost through non-use. As with "saved" water, the excess water allowed under the State Engineer's duty is not a vested property right unless actually needed and used for the production of crops. Downstream users have already appropriated the excess amount.

Another problem is the perceived inequity between how municipalities and irrigators are treated under Utah law. Some irrigators contend that municipalities are not subject to the same forfeiture penalty as they are. The water rights forfeiture statute provides that when an appropriator abandons or ceases to use water for a period of five years, the water right ceases and the water reverts to the public unless, before the expiration of the five-year period, the appropriator files a verified application for an extension of time with the State Engineer. Agriculture water users and municipalities are bound equally by the five-year period.

The distinction between the agricultural user and the municipality lies in the statutory basis upon which the State Engineer is authorized to approve and grant an

extension of time for nonuse. Applications for extension shall be granted by the State Engineer under *Utah Code Annotated* and 73-1-4(3)(a)(1996). Reasonable cause for non-use is shown by (1) financial crisis; (2) industrial depression; (3) operation of legal proceedings or other unavoidable cause; and (4) the holding of a water right without use by any municipality, metropolitan water district, or other public agency to meet the reasonable future requirements of the public. (*Utah Code Annotated* and 73-1-4(3)1996). Under this provision, the State Engineer will likely give an extension of time to a municipality in almost every case based on future development needs. This policy choice adopted by the legislature was likely created to allow cities to plan for and encourage development by obtaining water well in advance of its use. Obviously, to demand that growth occur before obtaining water needed for such development would be a detriment to communities. Nevertheless, an agricultural user also has the right to file an extension under 73-1-4.

Another distinction between agricultural and municipal water rights is that forfeiture is more difficult to prove against a municipality. In regards to an agricultural water user, it is generally apparent whether the water has been put to beneficial use by irrigating crops during the previous five-year period. The question is much more difficult for municipal use. For example, would diverting the water right once for domestic use restart the five-year period? Does a municipality need to use the entire water right or is partial use enough to restart the five-year period? If so, how much use is enough? No case law is available on this subject in Utah and these issues are yet undecided. Even so, a municipality should consider filing an extension every five years for water that is not being used or only partially being used to avoid forfeiture. Approval is almost always granted by the State Engineer on timely filed extensions.

10.4.5 Title To Land Around Utah Lake

When the State of Utah acquired ownership of the bed of Utah Lake, the boundaries of the lake bed were defined only as the ordinary high water mark. The state is presently negotiating with landowners over where the lake bed ends and private property begins.

10.5 Conservation and Development Alternatives

Where urbanization is reducing the amount of agricultural land, upgrading old irrigation systems to serve remaining farms and new lawn and garden systems is the major conservation and development objective. In southern Utah, eastern Juab, and western Wasatch counties, significant work is being done to improve irrigation systems with state financial assistance and funding provided under the Central Utah Project Completion Act.

10.5.1 Conveyance Systems

Pipeline projects are replacing old concrete ditches in several areas taking water from the High Line Canal in southern Utah County. This will save water and reduce labor costs for farmers. Additional water will become available in southern Utah County and in the Nephi area when the Spanish Fork Canyon-Nephi (SFN) project pipeline is completed by the Central Utah Water Conservancy District. Conveyance systems in Wasatch County will also be improved when the Wasatch County Water Efficiency Project (WCWEP) is completed.

10.5.2 Application Methods

Major changes will also occur in on-farm application efficiency in Wasatch County when the WCWEP is installed. This project will replace open ditches and flooding with pipelines and sprinkler systems. The WCWEP will receive $10,000,000 for project costs from the federal government under the Central Utah Project Completion Act's Section 207, Conservation Credit Program. An additional $20,000,000 will be provided under Section 202 and 303. Local cost of $10,769,000 will also be needed to complete this $40,769,000 project.

10.5.3 Watershed Management

The Santaquin Canyon Pilot Watershed Project (1955), the American Fork-Dry Creek Watershed Project and the Miller-Bigelow Watershed Project (1964) have been completed. They addressed floodwater and sediment damage and agricultural water management problems in their respective areas. Watershed work plan applications are being prepared in eastern Juab County and southern Utah County to improve irrigation water management and reduce erosion. A watershed work plan for Heber Valley, Round Valley and the Francis/Woodland area, has been prepared. An inventory of sedimentation problems along Salt Creek in Juab County is planned by the NRCS.

10.6 Issues and Recommendations

One water policy issue affecting agriculture is discussed: Land ownership around Utah Lake.

10.6.1 Land Ownership Around Utah Lake

Issue - The ownership boundary between sovereign lands of Utah Lake and private upland is not certain.

Discussion - When the U.S. Supreme Court reaffirmed the state's ownership of the bed of Utah Lake in Utah v. U.S. (1987), the location of the "ordinary high water mark" at statehood, which is the public ownership boundary, was not addressed by the court. Due to human-caused influences on the lake level and the gradual slope of much land around the lake, the location of the "ordinary high water mark" is difficult to determine with certainty.

In order for the public to exercise its right to use public trust lands and for private landowners to exercise their rights, the Division of Forestry, Fire and State Lands is negotiating with upland owners to establish the boundary around the lake. Substantial progress is being made as the division and landowners gain experience in negotiating the complex issues concerning title and ownership of lands.

Recommendation - The Department of Natural Resources has made the boundary negotiation a high priority. The Division of Forestry, Fire and State Lands should continue to expedite negotiations around the lake. ✣ ✣